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VENABLE LLP
P.O. BOX 34385
WASHINGTON, DC 20043-9998

EXAMINER	
WANG, RONGFA PHILIP	
ART UNIT	PAPER NUMBER
2191	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,151	OPEM ET AL.	
	Examiner	Art Unit	
	PHILIP WANG	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to amendment filed on 12/22/2008.

2. Per Applicant's request, claims 1 and 7 have been amended.

3. Claims 1-7 remain pending in this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant points to specification, page 4, lines 15-27 for support of "find errors introduced between the first and the second compilation". In this paragraph, lines 24-25, states "Provided that the revalidation indicates no errors in the compiler..." It appears the scope of the invention is limited to detecting the existence of errors instead of detecting what errors were introduced. spec., page 1, lines 16-18, "The invention ensures that no fault is introduced due to error in the compiler code." There is a difference between (1) detecting the condition of the introduction of errors and (2) detecting the errors. Condition (1) detecting if errors were introduction without knowing exactly what errors. Condition (2) detecting precisely what errors are introduced.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2, 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKeeman et al. (US Pat. 5,754,860; the reference was revealed in Applicant's IDS filed on 10/14/2005), hereinafter "McKeeman", in view of Schmitt et al. (US Pub. # 2002/0046397 A1), hereinafter "Schmitt".

As for claim 1, McKeeman discloses:

A method, the method comprising:

compiling a test program a first time which test program is defined in a control language (FIG. 2 and Col. 1, lines 23-40, "…while compiling a test program…");

validating the compiler and the compiler execution environment by verifying that the test program executes correctly (Col. 1, lines 23-40, "…used to test a corresponding compiler…");

generating a first software means derived from the compiled test program intended for later comparison purposes (FIG. 2);

compiling the test program a second time (FIG. 2);

compiling a program after the compilation of a user-written program (FIGs. 13-15 and Col. 30, lines 7-17);

generating a second software means intended for a comparison based on the second compilation of the test program (FIG. 2 and Col. 6, lines 50-65);

comparing the first software means with the second software means (FIGs. 2 and 5b); to find errors introduced between the first and the second compilation (FIGs. 13-15 and 16a, Col. 1, lines 23-40, Col. 6, lines 47-49 and 60-65, "…If a difference is detected, there is deemed to be a run-time test failure...", " if the corresponding outputs...are not equivalent...at least one of the language processors ...is faulty...");

enabling, provided that the revalidation indicates no errors in the compiler and the compiler execution environment, the user-written program to execute in a device (Col. 1, lines 23-40 and Col. 6, lines 47-49 and 60-65; note that when a compiler is validated, any program compiled by the validated compiler should be allowed to execute in a device).

However, McKeeman does not explicitly disclose:

the user-written program to execute in a device with safety features for control of real world entities; and when the user-written program is enabled, executing said user-written program in said device with safety features for control of real world entities.

On the other hand, Schmitt discloses:

the user-written program to execute in a device with safety features for control of real world entities; and when the user-written program is enabled, executing said user-written program in said device with safety features for control of real world entities. (computer programs for industrial controllers, in particular motion controllers, ABSTRACT, lines 1-3 and FIGs. 4-5, [0034], "…user-defined subprograms..."; [0035], "...programming of industrial controllers...").

It would have been obvious to one of ordinary skill in the art at the time of invention was made to combine the teachings of McKeeman with the teachings of Schmitt by enabling the user-written program to execute in a device with safety features for control of real world entities in order to control an industrial process programmable controller (PLC), or programming the motion controller of a processing machine or production Machine (Schmitt, [0007]).

As for claim 2, McKeeman discloses:

the comparing step is performed in the same workstation or general-purpose computer as that in which the compiler is executing (FIGs. 1-2).

As for claim 4, McKeeman discloses:

the comparing step is performed in the device (FIGs. 1-2),

and Schmitt discloses:

the device with safety features (computer programs for industrial controllers, in particular motion controllers, ABSTRACT, lines 1-3 and FIGs. 4-5).

As for claim 6, McKeeman discloses:

the test program is defined in a control language (FIG. 2 and Col. 6, lines 33-35),

and Schmitt discloses:

a control language derived from the standard IEC 6-1131 ([0037], lines 2-6).

As for claim 7, the claim is rejected for the same reason as set forth in the rejection of claim 1.

6. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKeeman in View of Schmitt, and further in view of Frey et al. (US Pub. # 2003/0135842 A1), hereinafter "Frey".

As for claim 3, both McKeeman and Schmitt do not explicitly disclose,

the software means is a check-sum or a code for cyclic redundancy check.

However, Frey discloses:

the software means is a check-sum or a code for cyclic redundancy check ([0141]).

It would have been obvious to one of ordinary skill in the art at the time of inventionwas made to combine the teachings of McKeeman and Schmitt with the teachings of Frey by having the software means to be a check-sum or a code for cyclic redundancy check in order to verify that

the source code file has not been tampered with (Frey, [0141]).

As for claim 4, McKeeman discloses:

the comparing step is performed in the device (FIGs. 1-2),

and Schmitt discloses:

the device with safety features (computer programs for industrial controllers, in particular motion controllers, ABSTRACT, lines 1-3 and FIGs. 4-5).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over McKeeman and Schmitt in view of Frey, and further in view of Moiler et al. (US Pat. 6,598,074 B1), hereinafter 'Moller".

As for claim 5, none of McKeeman, Schmitt, and Frey explicitly discloses:

an additional step of downloading a variable that changes over time, which is downloaded in the same message as the check-sum or code to the device, where the variable that changes over time is used to achieve a change in the message.

However, Moiler discloses:

An additional step of downloading a first information, which is downloaded in the same message as a second information to the device (Col. 10, lines 3-8 and FIGs. 1-2);

the variable that changes over time is used to achieve a change in the message (this message contains a timestamp, Col. 11, lines 12-14; note that timestamp is considered as a variable and for different time, timestamp is different);

a first information is a variable that changes over time (timestamp, Col. 11, lines 12-14); and a second information is the check-sum or code (Col. 10, lines 3-8).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to combine the teachings of McKeeman, Schmitt, and Frey with the teachings of Moiler by comprising an additional step of downloading a variable that changes over time, which is downloaded in the same message as the check-sum or code to the device, where the variable that changes over time is used to achieve a change in the message in order to control an industrial process programmable controller (PLC), or programming the motion controller of a processing machine or production Machine (Schmitt, [0007]).

Response to Arguments

In the remark,

1) Applicant argued --

McKeeman et al. does not suggest utilizing one test program to revalidate a compiler by compiling the test program twice and comparing the results of the first compiling and second compiling.

1) Examiner's response

McKeeman appears to teach a test program to revalidate a compiler (Col. 1, lines 23-40, "…while compiling a test program…") by compiling the test program twice,(see Fig. 2, 50 program 1,) and comparing the results (see Fig, 2, output1 and output2 are compared). Please note that the claim body does not specifically claim the first compilation and the second

compilation use the same compiler. The examiner suggests further amending the claims to specifically point out there is only one compiler.

2) Applicant argued –

The combination does not suggest a user-written program that executes in a device with safety features for control of real world entities, wherein when the user-written program is enabled it is executed in the device.

2) Examiner's response

Schmitt -- [0034], "…user-defined subprograms..."; [0035], "...programming of industrial controllers..." appears to suggest such user-written program.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Wang whose telephone number is 571-272-5934. The examiner can normally be reached on Mon - Fri 8:00 - 4:00PM. Any inquiry of general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Philip R. Wang/ 2/27/2009